RESPONSE TO COMMENTS
DRAFT TMDL REPORT FOR THE
CENTERVILLE RIVER – EAST BAY SYSTEM
(Report Dated December 19, 2006)

Joyce and Roger Parmenter

Comment (1): The subject of money to pay for sewering in the County of Barnstable will have to be a State issue. I believe that the Federal government will have to shoulder the major portion of the expense. They control the ocean. In all respects. And so.
Off shore drilling, fishing laws, and all manner of pollution laws. If the Coast Guard marks the waters then it is federal waters. Whether or not, all violations end up in federal courts.
I would not be surprised if the amount of money paid to the Feds for a permit to drill for oil or gas in side the 200 mile limit of the United States for one year would pay for sewering of all Massachusetts costal communities or country's.?
Response: As described in the TMDL Reasonable Assurance section, some financial incentives and loan programs are available to assist towns. Financial incentives include the State Revolving Funds (SRF) program and federal funds available under Sections 319, 604 and 104(b) programs of the CWA, which are provided as part of the Performance Partnership Agreement between MassDEP and EPA. Other potential funds and assistance are available through Massachusetts' Department of Agriculture's Enhancement Program and the United States Department of Agriculture's Natural Resources Conservation Services. Additional financial incentives include income tax credits for Title 5 upgrades and low interest loans for Title 5 on-site subsurface wastewater disposal system upgrades available through municipalities participating in this portion of the state revolving fund program. Unfortunately, however the funding need far outpaces what is available so the financial burden for restoring the estuarine ecosystems, that have been negatively impacted by nitrogen pollution, primarily from septic systems, will be largely on the residents that contribute to that problem.

Dale Saad, Barnstable DPW

Comment (2): How was sentinel station BC-T chosen? The station is on the edge of a historic eelgrass bed and it is questionable if that area ever supported a well-developed eelgrass bed (the 1951 data did not show the presence of eelgrass). Will the Town be required to monitor eelgrass at this location given the uncertainty over its historical presence? Is the Town expected to restore eelgrass to an area that may never have had eelgrass?
Response: The rationale for picking the sentinel station is discussed in great detail in Section VIII.2 Threshold Nitrogen Concentrations of the accompanying Technical Report. The MassDEP eelgrass mapping program will monitor Eel grass. In most cases MassDEP believes that the (current) 5 year mapping intervals will show a gradual progression in eelgrass reestablishment from the cleaner water areas (near the inlet to Nantucket Sound), or from areas where it has been transplanted, back

into to the more inland areas of the estuary where the historical N concentration and load are higher.

If target concentrations are met and restoration goals are not, it will be the MassDEP's responsibility to revise the TMDL and modify the targets as appropriate. During this process the habitat substrate should be evaluated for suitability and the optical properties of the water column should be evaluated to determine if there is adequate sunlight penetration. It should also be noted that the opposite condition could be observed (restoration goals are met, but not the nitrogen concentration. Either way it would be up to the MassDEP to reevaluate the TMDL.

Comment (3): How will physical changes (resulting from storms, etc.) in the embayment outlets or over wash of Long Beach to be handled? The sentinel station is located at the apex of Bumps River and the Centerville River, which is a very active location
Response: MassDEP recognizes that the inlet is subject to dynamic processes and that maintaining the current configuration may not be feasible. If the inlet migrates, then additional modeling will be required to determine appropriate scenarios necessary to achieve the target threshold N concentrations.

Comment (4): Who will be responsible for and how will monitoring for compliance be determined? The parameters for mid-tide sampling, procedures, protocols, and the final criteria for determining compliance must be worked out in advance. Will DEP develop a template that the towns' can use as a "back bone" to frame their individual monitoring plans?
Response: The Department is of the opinion that there are two forms of monitoring that are useful to determine progress towards achieving the goals of the TMDL keeping in mind that MassDEP's position is that implementation will be conducted in an iterative process where adjustments may be needed along the way. The two forms include 1) tracking implementation progress as approved in the Town CWMP plan and 2) monitoring ambient water quality conditions at the sentinel stations identified in the MEP Technical Report.

As you are aware the CWMP will evaluate various options to achieve the goals set out in the TMDL and Technical Report. It will also make a final recommendation based on existing or additional modeling runs, set out required activities, and identify a schedule to achieve the most cost effective solution that will result in compliance with the TMDL. Once approved by the Department tracking progress on the agreed upon plan will, in effect, also be tracking progress towards water quality improvements in conformance with the TMDL.

Relative to water quality, the Department believes that an ambient monitoring program, much reduced from the data collection activities needed to properly assess conditions and to populate the model, will be important to determine actual compliance with water quality standards. Although the TMDL load values are not fixed, the target threshold nitrogen concentration at the sentinel station is fixed. In addition, there are target threshold N concentrations that are provided for many

other non-sentinel locations in sub-embayments to protect near-shore benthic habitat. These are the water quality targets, and a monitoring program should encompass these stations at a minimum. Through discussions amongst the MEP it is generally agreed that existing monitoring programs, which were designed to thoroughly assess conditions and populate water quality models, could be substantially reduced for compliance monitoring purposes. Although more specific details need to be developed the Department's current thinking is that about half the current effort (using the same data collection procedures) would be sufficient to monitor compliance over time and to observe trends in water quality changes. In addition, the benthic habitat and communities would require periodic monitoring on a frequency of about every 3-5 years. Finally, in addition to the above, existing monitoring conducted by MassDEP for eelgrass should continue into the future to observe any changes that may occur to eelgrass populations as a result of restoration efforts. It should be noted that the Department recognizes that any effort will be a financial burden to implement and as such we are seeking ways to help fund future monitoring activities.

The MEP will continue working with the Towns to develop and refine monitoring plans that remain consistent with the goals of the TMDL. It must be recognized however that development and implementation of a monitoring plan will take some time but it is more important at this point to focus efforts on reducing existing watershed loads to achieve water quality goals.

Comment (5): Who will conduct benthic infauna/eel grass sampling at the sentinel station, and on what timeline? What are the levels of change over time that will show a positive effect?
Response: The Department will continue the five-year frequency eelgrass monitoring program, but envisions the towns contracting for the benthic macroinvertebrate program on a frequency similar to that of the eelgrass study, i.e., every 5 years. The final monitoring program designs have not yet been determined, nor have the levels of change, expected over time that would indicate a positive effect.

Comment (6): If restoration goals (eelgrass/benthic infauna) are not achieved upon meeting the sentinel station water column nitrogen target how will modified target(s) to be developed? Who will be responsible for development of modified targets?

Response: **If target concentrations are met and restoration goals are not, it will be the MassDEP's responsibility to investigate why and if necessary revise the TMDL and modify the targets as appropriate. During this process the habitat substrate should be evaluated for suitability and the optical properties of the water column should be evaluated to determine if there is adequate sunlight penetration. It should also be noted that the opposite condition could be observed (restoration goals are met, but not the nitrogen concentration. Either way it would be up to the MassDEP to reevaluate the TMDL.**

Comment (7): What are DEPs expectations of a timeline for the development of implementation plans, and what is an expected timeline for implementation?
Response: Specific timelines cannot be determined until a recommended plan has been developed. The MassDEP requests that the Town develop a recommended plan as soon as possible to and make reasonable progress in a reasonable amount of time.

Comment (8): Can a pilot implementation plan, with monitoring plan, be developed using a Cape Cod embayment(s) that involves more than one town?
Response: MassDEP does not see any problem with this. Any progress toward implementation is beneficial.

Comment (9): How much access will towns have to the MEP Linked Embayment-Watershed model for alternative evaluations as part of implementation planning?
Response: **MassDEP continues in its efforts to make the model available to the towns to conduct alternative analysis if they choose and, in fact, has contracted for services to develop the needed protocols for this to happen. In the meantime SMAST is committed to providing additional model runs to assist the towns.**

Comment (10): Is the State looking at an Anti-degradation Policy at the watershed level?
Response: MassDEP is currently developing an anti-degradation strategy, which would be applied at the watershed level. It is not finalized at the time of this writing.

Comment (11): For sections of communities that will have extended implementation schedules due to phased implementation is a community expected to implement interim measures, i.e. requiring septic upgrades to IA, until the final solution (i.e. sewers) is implemented to meet the TMDL?
Response: Communities may want to consider non-structural interim measures such as the use of escrow accounts established under local or state consent orders to allow interim repairs while establishing a funding mechanism for appropriate wastewater solutions once the CWMP is completed.

Comment (12): What sources of funding will be available for implementation with an increasing number of towns seeking limited funding?
Response: **The current list of funding sources has already been discussed in the Reasonable Assurances section of the TMDL document, and the response to comment #1 above. No additional sources have been identified at this time.**

Sue Nickerson, Executive Director/Nantucket Soundkeeper
Alliance to Protect Nantucket Sound

Comment (13): This correspondence is to express the support of Nantucket Soundkeeper for the proposed TMDLs for the Centerville River Estuary, as presented at the public meeting in Hyannis, MA on August 1. As the designated advocate for the present and future health and integrity of Nantucket Sound, we are vitally concerned with near-shore pollution inputs that are not only fouling and degrading Cape & Islands estuaries, but are potentially degrading the waters of the Sound as well. We therefore endorse the efforts of

DEP to establish and enforce Total Maximum Daily Load requirements for critical water bodies connected to Nantucket Sound. The maximum loads identified through the intensive efforts of the MA Estuaries Project Centerville River project are fully supportable as they are best [based]on sound and credible science. While the task of achieving the threshold nitrogen loads is indeed daunting, Soundkeeper stands prepared to help in a variety of ways, including public education and outreach, advocacy for effective solutions, and enforcement of environmental laws when necessary. Please let us know how we may be of further assistance in implementing actions to achieve the recommended TMDLs.

Response: the Department and the MEP project staff applaud your commitment to the efforts to restore and preserve the waters of Nantucket Sound, the Cape and the Islands. There will be many opportunities for agencies, municipalities, and advocacy groups to participate in the myriad of activities required to implement the TMDL and the upcoming Comprehensive Wastewater Management Plans of towns in which these waters lie. Please stay apprised of the MEP and municipal programs that are of interest to your organization, and volunteer your services when appropriate.

Christopher M. Kilian, Esq., Vice President, Vermont Advocacy Center Director
Clean Water and Healthy Forests Program Director, Conservation Law Foundation

Comment (14): The Draft TMDL inappropriately considers septic systems, stormwater runoff, and wastewater treatment systems that discharge initially into groundwater to be non-point sources. Due to this erroneous determination, these discharges (but for an extremely small fraction of the nitrogen load) are aggregated in the Load Allocation (LA) in the Draft TMDLs rather than the in the Wasteload Allocation (WLA).

The situation in the affected waters is extremely dire. The Draft TMDLs warn that:

> Coastal communities, including Barnstable; rely on clean, productive, and aesthetically pleasing marine and estuarine waters for tourism, recreational swimming, fishing, and boating, as well as for commercial fin fishing and shellfishing. Failure to reduce and control N loadings may result in complete replacement of eelgrass by macro-algae, a higher frequency of extreme decreases in dissolved oxygen concentrations and fish kills, widespread occurrence of unpleasant odors and visible scum, and a complete loss of benthic macroinvertebrates throughout most of the embayments. As a result of these environmental impacts, commercial and recreational uses of Centerville River - East Bay System coastal waters will be greatly reduced, and could cease altogether.

Id. at ii. Indeed, the Draft TMDLs propose a load reduction of 52% for the Centerville River. Achieving this level of reduction will require dramatic and sustained effort.The Draft TMDLs candidly state that "On-site subsurface wastewater disposal system effluents discharge to the ground, enter the groundwater system and eventually enter the surface water bodies. In the sandy

soils of Cape Cod, effluent that has entered the groundwater travel [sic] towards the coastal waters at an average rate of 1 foot per day." Id. at 4. Similarly, for stormwater discharges, the Draft TMDLs state "On Cape Cod the vast majority of storm water percolates into the ground and aquifer and proceeds into the embayment systems through groundwater migration." Id. at 17. The Draft TMDLs succinctly state that "Nitrogen transfer through direct groundwater discharge to estuarine waters is based upon studies indicating negligible aquifer attenuation and dilution, i.e. 100% of load enters embayment." Id. at 20.

The Draft TMDLs expressly recognize that "on-site subsurface wastewater disposal systems" and "storm water" are inextricably hydrologically connected to the receiving waters. Based on this recognition the Draft TMDLs conclude that "the data indicates that of the controllable load the septic systems contribute 77%, and land uses contributes [sic] 23%" of the current excessive nitrogen load presently being directly added to the receiving waters. Id. at 12.

On-site subsurface wastewater disposal systems and stormwater disposal systems are comprised of human-made conveyances including pipes, ditches, channels and other discreet conveyances. As recognized in the Draft TMDLs, on Cape Cod these systems are designed to discharge polluted wastewaters through groundwater with known water flow travel characteristics that inexorably result in addition of pollutants to the affected surface water embayments. By design these systems result in a point-source discharge of pollutants of concern to these waters of the United States, within the meaning of Section 502 the Clean Water Act, 33 U.S.C. § 1361.

Unfortunately, the Draft TMDLs state that "The Linked Model accounts for storm water loadings and groundwater loading in one aggregate allocation as a non-point source - combining the assessments of waste water and storm water (including storm water that infiltrates into the soil and direct discharge pipes into water bodies) for the purpose of developing control strategies." Id. at 17. The determination that these conveyance and discharge systems are non-point sources is erroneous.

The Draft TMDLs document a direct discharge connection between the sources of nitrogen and the receiving surface waters. **This direct connection is sufficient to establish that the source discharges are point sources within the meaning of the Clean Water Act. Therefore, these sources should be included in the WLA in the Draft TMDLs, rather than in the LA.**
Response: MassDEP disagrees with this comment. Although on-site wastewater disposal systems and groundwater discharges are human-made conveyance systems, unlike direct surface water discharges they discharge to the ground. While traveling through the ground nitrogen is transformed through dilution, dispersion, and attenuation processes before they discharge to the embayment itself. As a result, MassDEP is of the opinion that groundwater discharges of all types are nonpoint discharges and thus belong in the load allocation rather than the wasteload allocation.